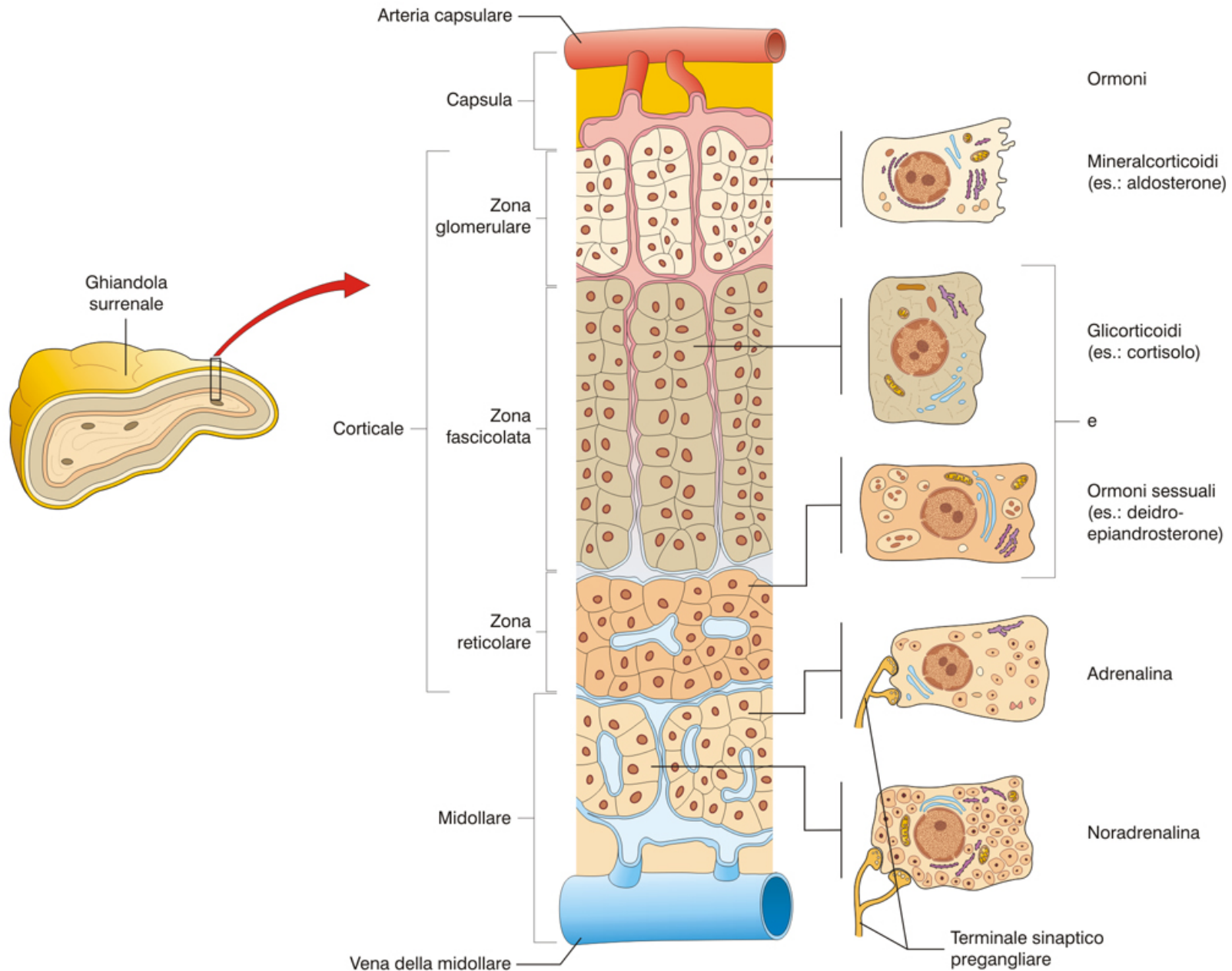
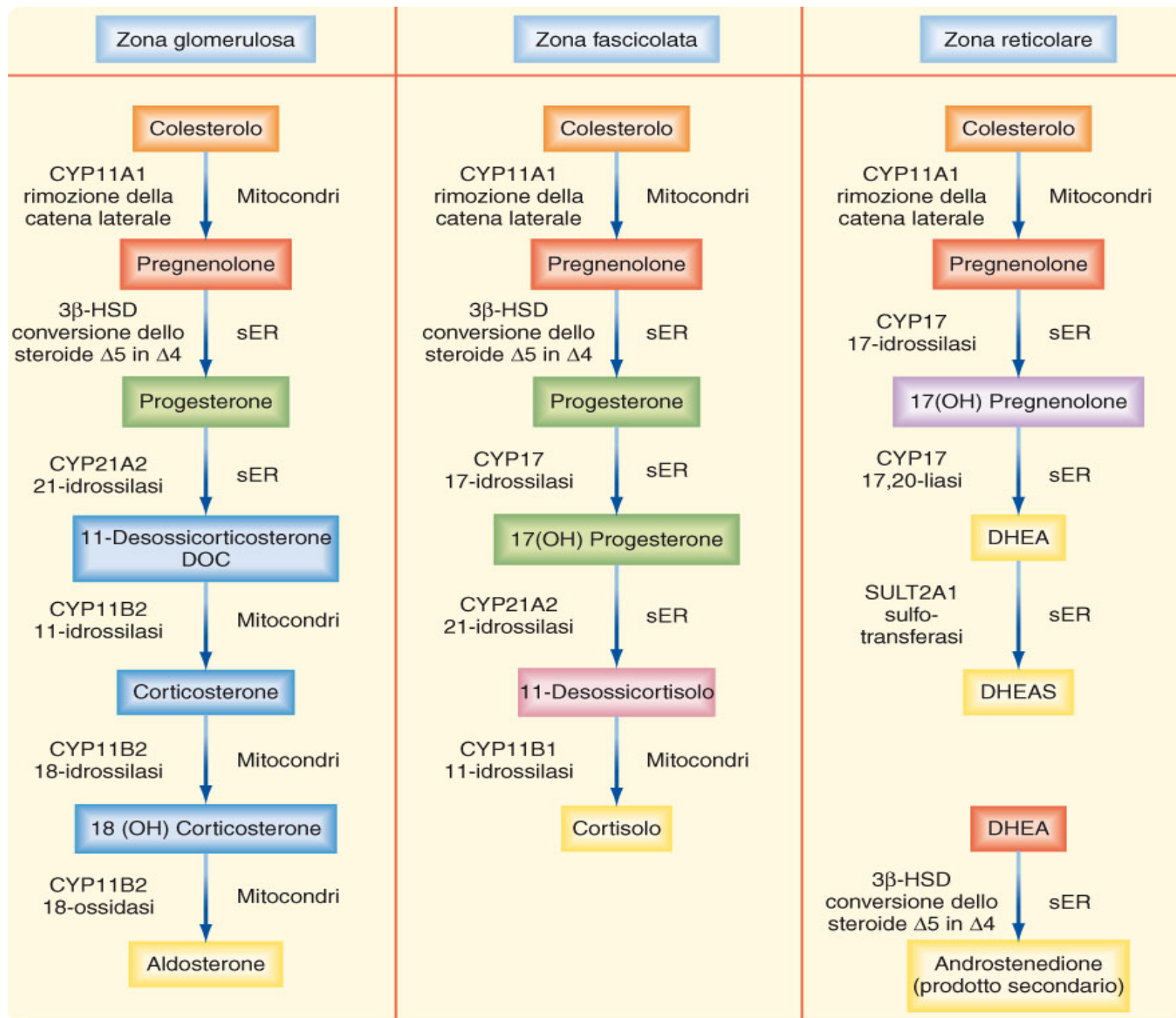
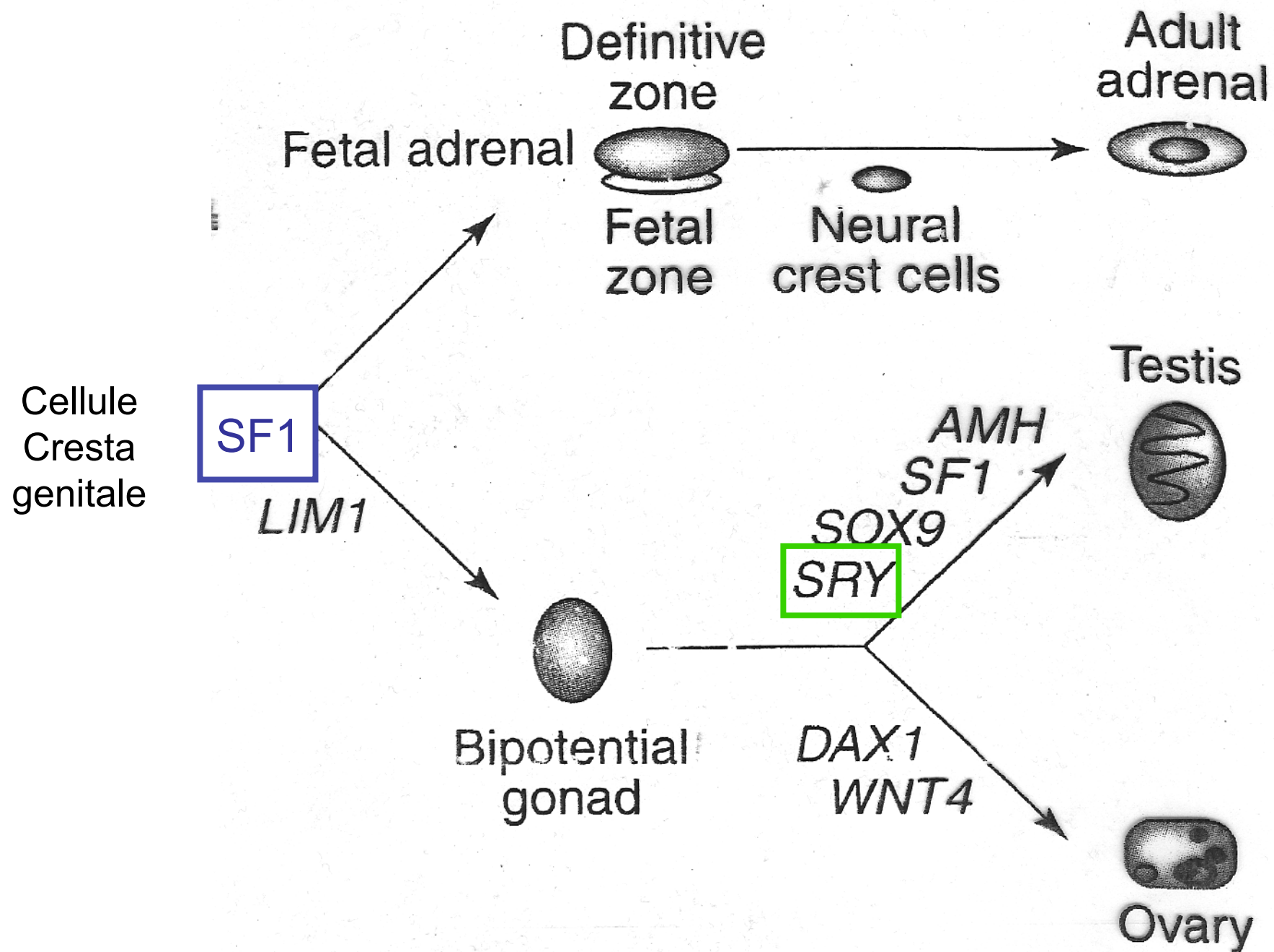
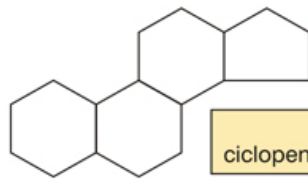


Corticale surrenalica

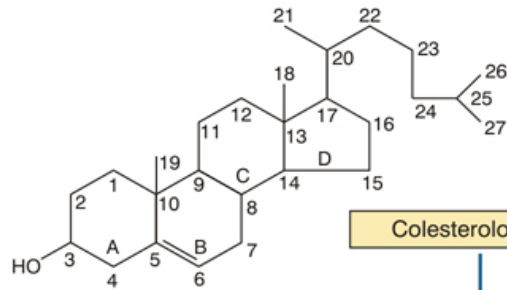




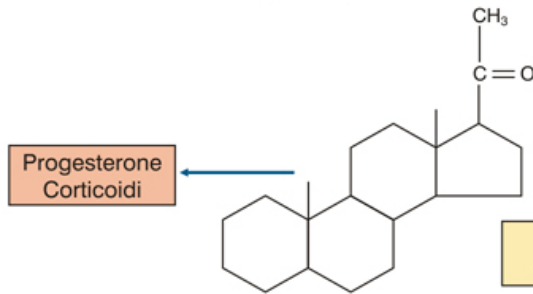




Nucleo del
ciclopentanoperidrofenantrene

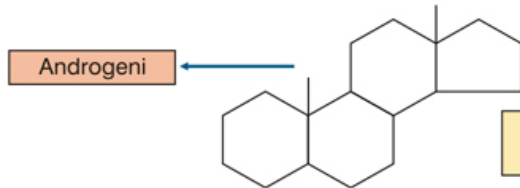


Colesterolo (C27)



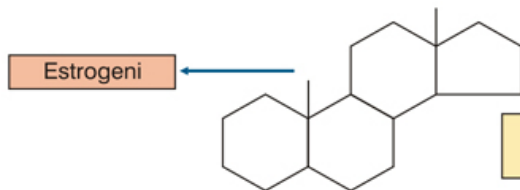
Progesterone
Corticoidi

Derivati
dal pregnano (C21)



Androgeni

Derivati
dall'androstano (C19)

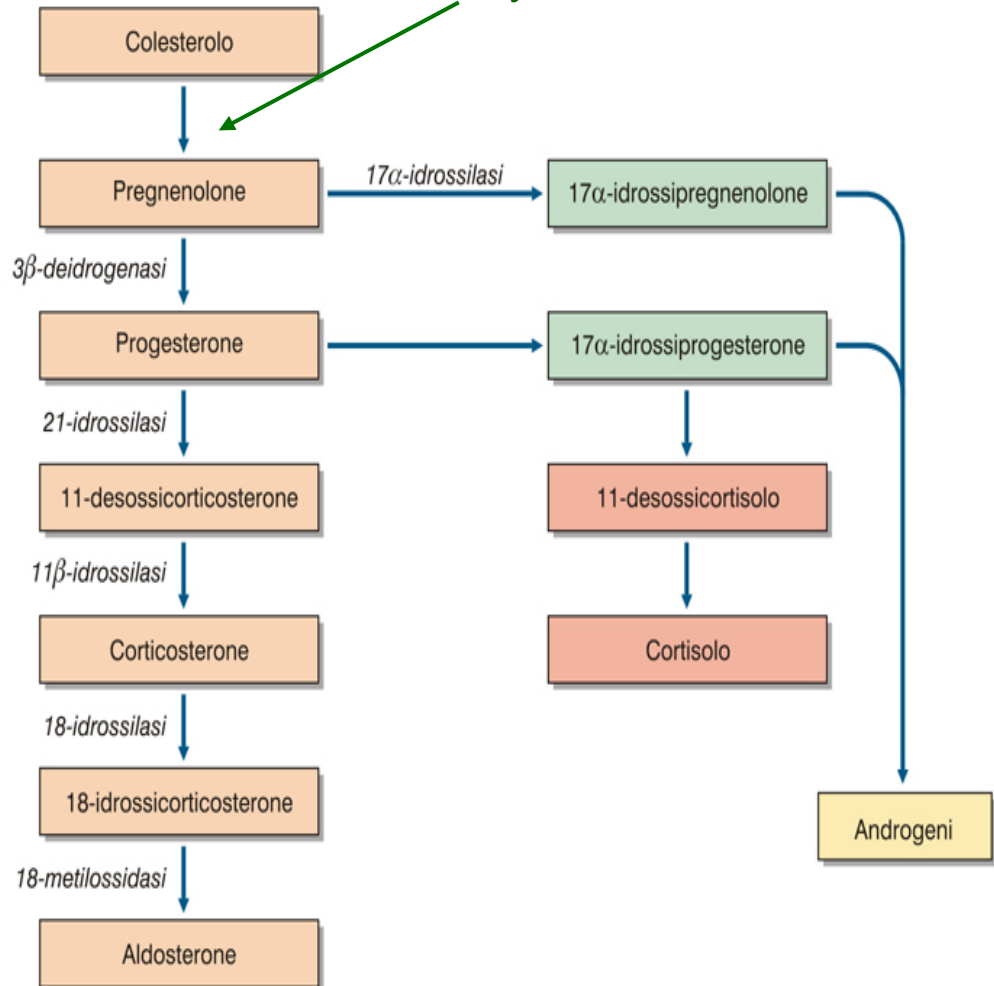


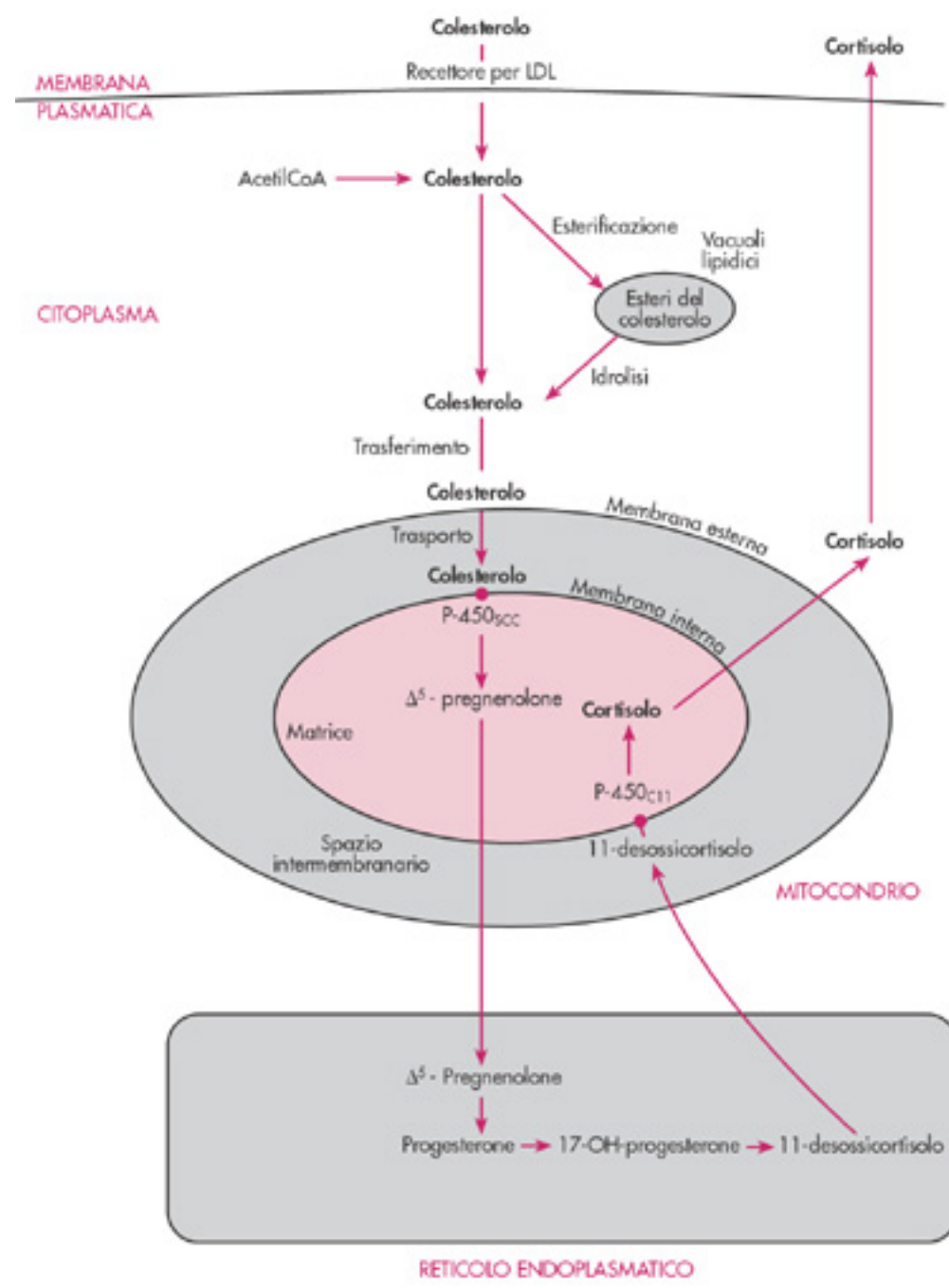
Estrogeni

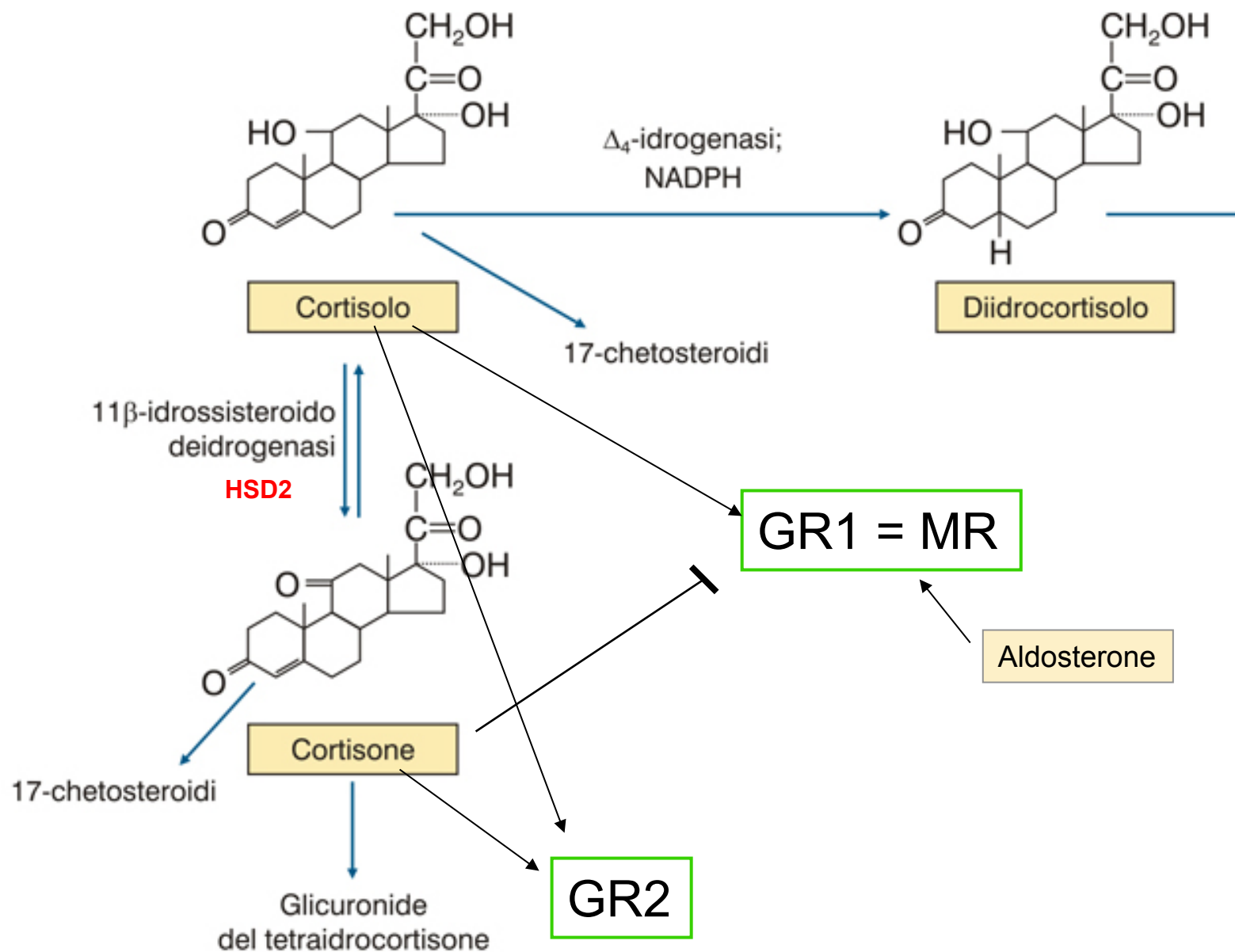
Derivati
dall'estrano (C18)

SF1

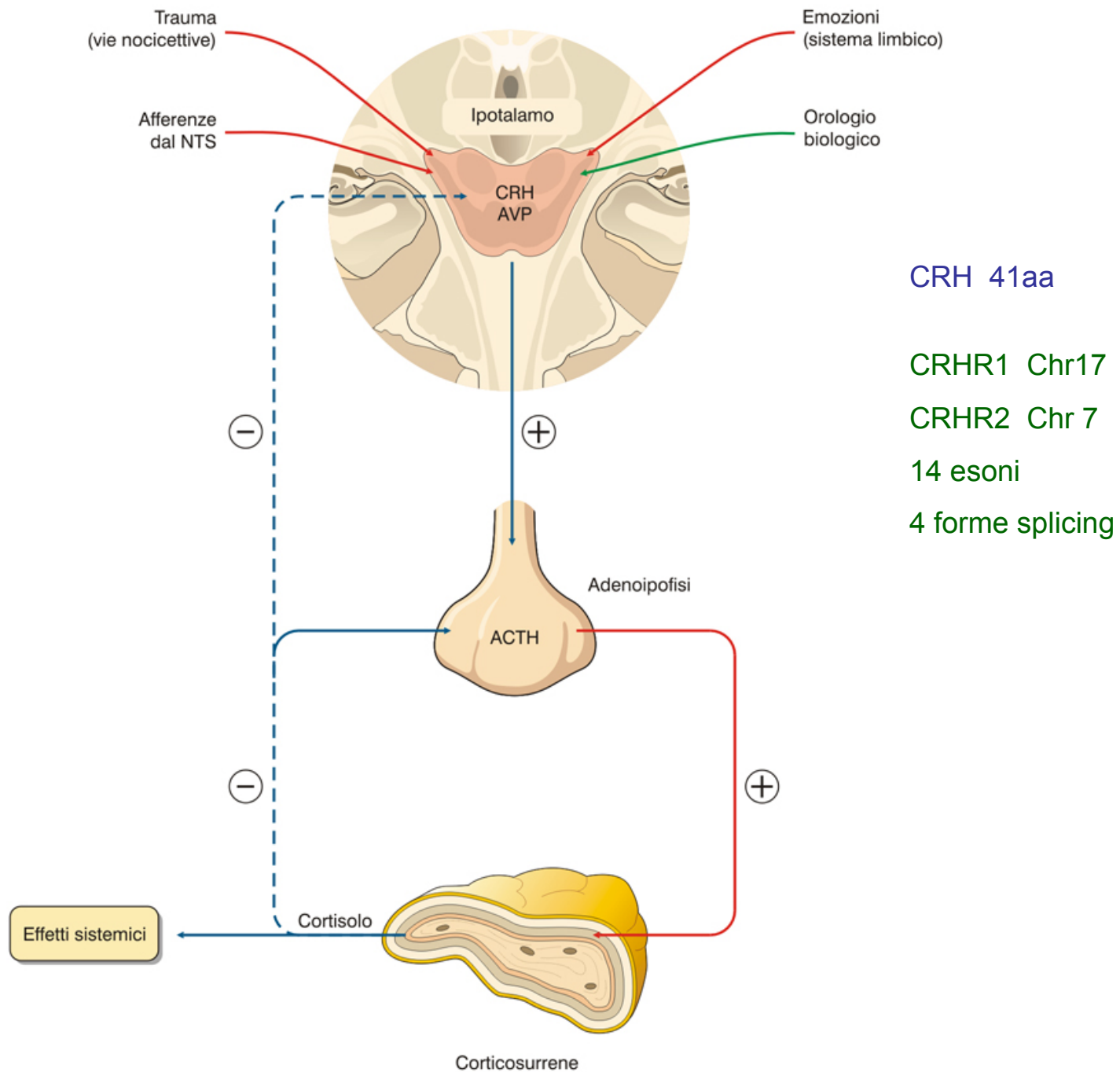
Desmolasi
Cyt P450 scc

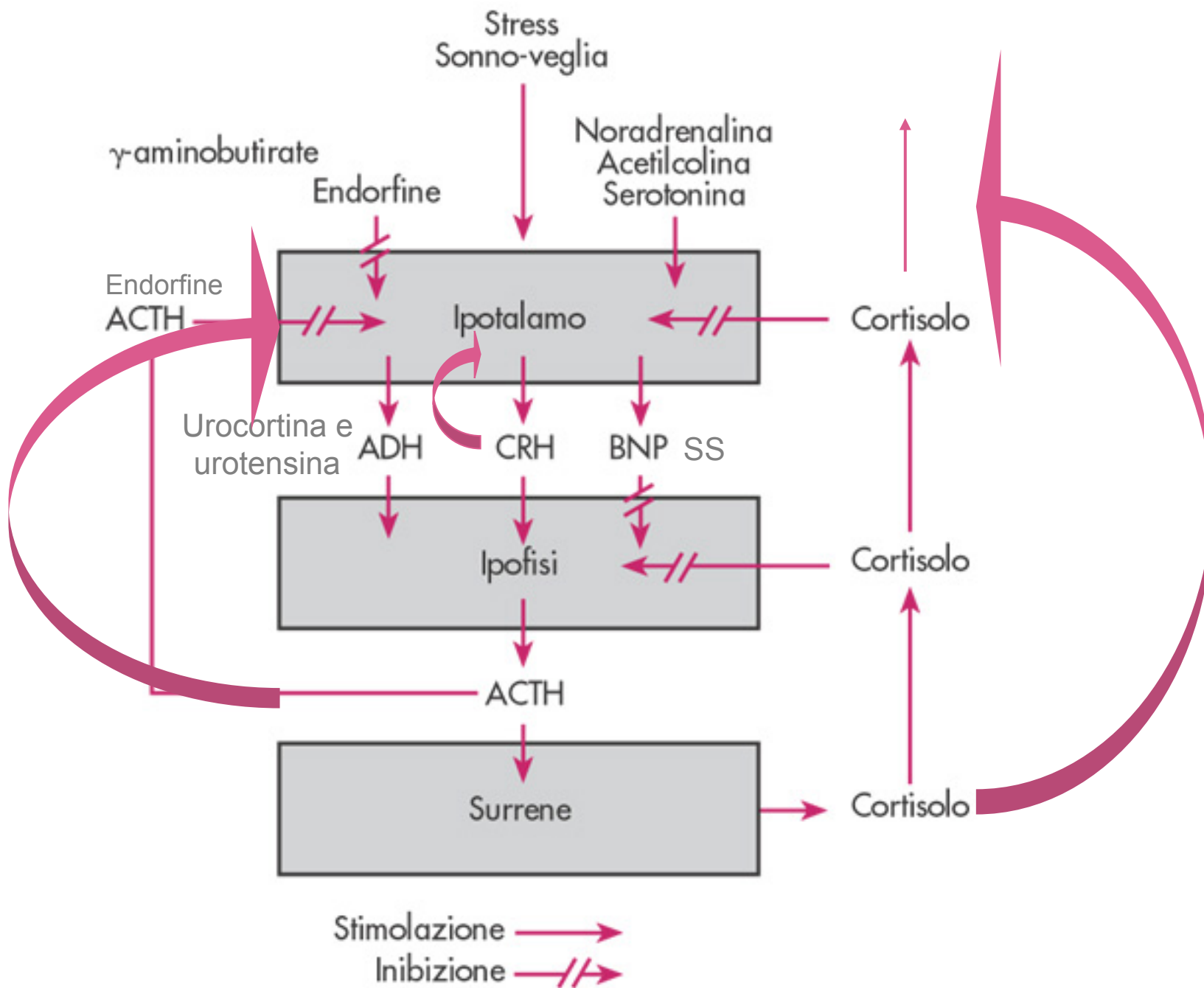




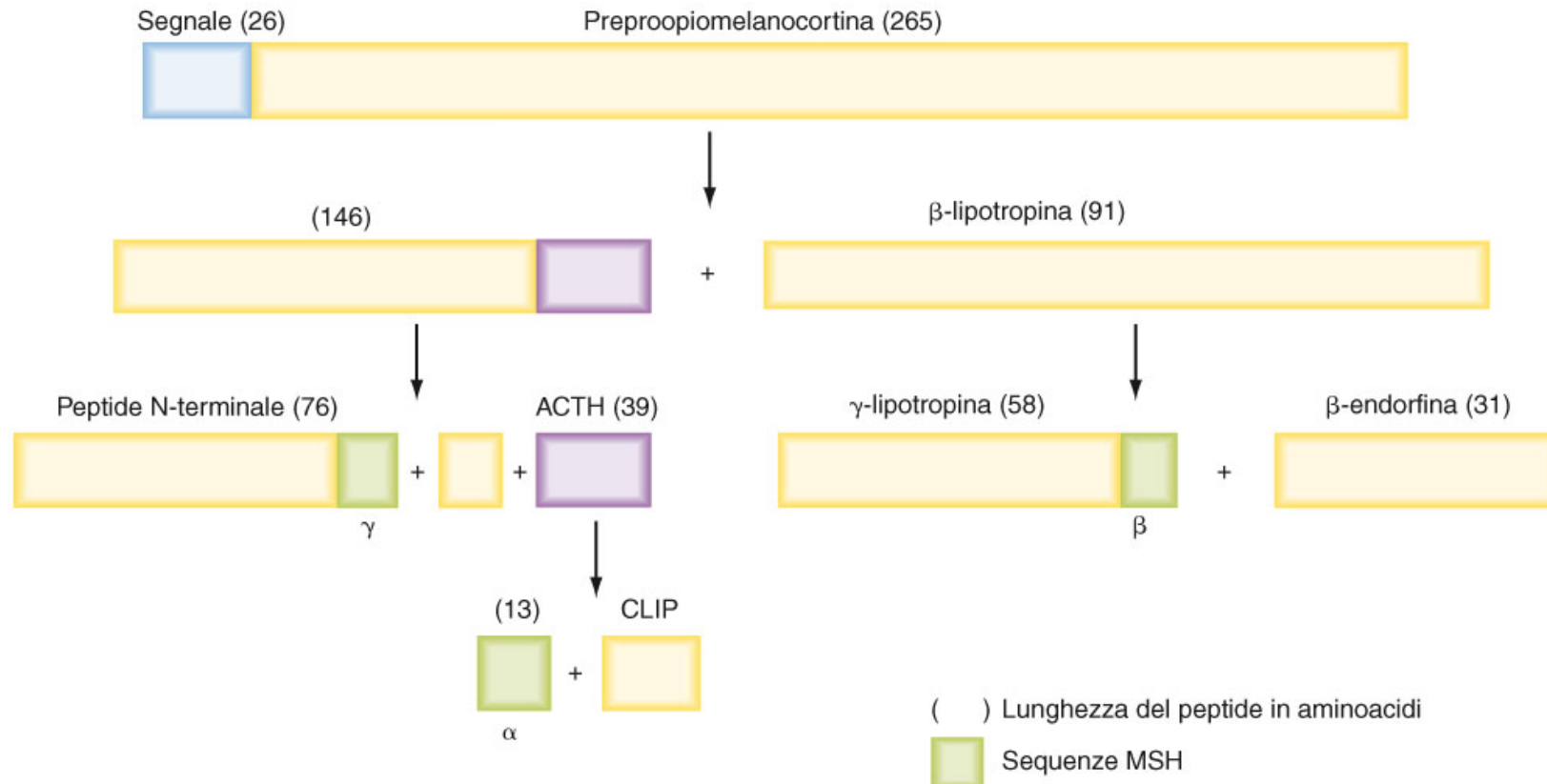


Asse HPA





POMC



Ipofisi

Ipotalamo

sistema immunitario --> derma

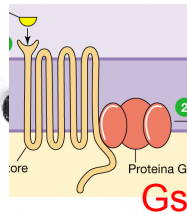
Lipotrofina e endorfina

β LIOTROPINA 91aa

γ LIOTROPINA 58aa

β ENDORFINA 31aa
Met-Enkefalina 5aa

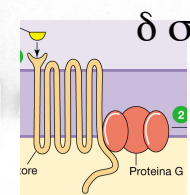
RECETTORE 7DTM



-adipociti
attività lipolitica
(sinergismo cortisolo)

- sistema immunitario
immunomodulazione

RECETTORI 7DM



$\delta \sigma \epsilon \mu$

- ACTH ↓
- FSH- LH ↓
- Prolattina ↑
- insulina ↑
- glucagone ↑
- iperglicemia ↑

- dolore: effetti
collaterali morfina

MSH

α MSH 14aa (13aa)--> pigmentazione

β MSH 22aa --> controllo alimentare
animali da letargo pars intermedia

γ MSH 12aa

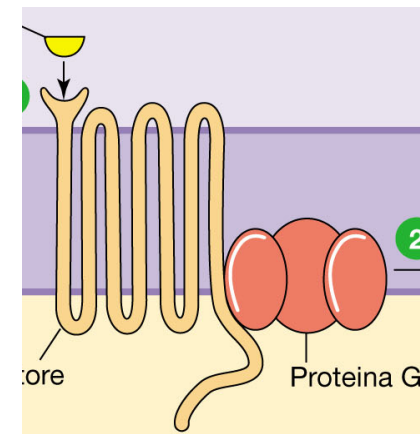
MCR1 --> pigmentazione

MCR2 --> lega ACTH

MCR3 -->

MCR4 --> controllo alimentare (agonista inverso AgRP)

MCR5



ACTH

■ **Tabella 43-3** Regolazione della secrezione di ACTH.

<---CRF

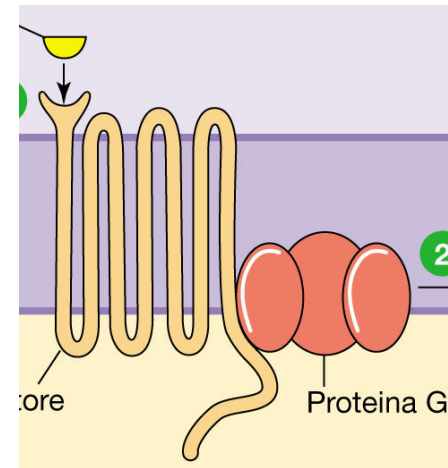
	<i>Stimolazione</i>	<i>Inibizione</i>
Urocortina	Fattore di liberazione della coricotropina (CRH)	Aumento del cortisolo
Urotensina	Diminuzione del cortisolo	Enkefaline
	Adrenalectomia	Opioidi
	Metirapone	ACTH
	Passaggio sonno-veglia	Somatostatina
	Stress	acido γ -aminobutirrico (GABA)
	Ipoglicemia	CRF
	Anestesia	ANP- BNP (urodilattina)
	Interventi chirurgici	
	Trauma	
	Infezioni	
	Pirogeni	
	Disturbi psichiatrici	
	Ansia	
	Depressione	
	Ormone antidiuretico	
	Agonisti α -adrenergici	
	Antagonisti β -adrenergici	
	Serotonina	
	Acetilcolina	
	Interleuchine IL-1 IL-6 INF	
	Peptidi gastrointestinali GIP	

ACTH recettore

MCR2 (ACTHRecpt) Chr18

1 singolo esone coding region

(MCR1 bassa affinità)



Gs

Gq ($\beta\gamma$)

Corticale surrenalica

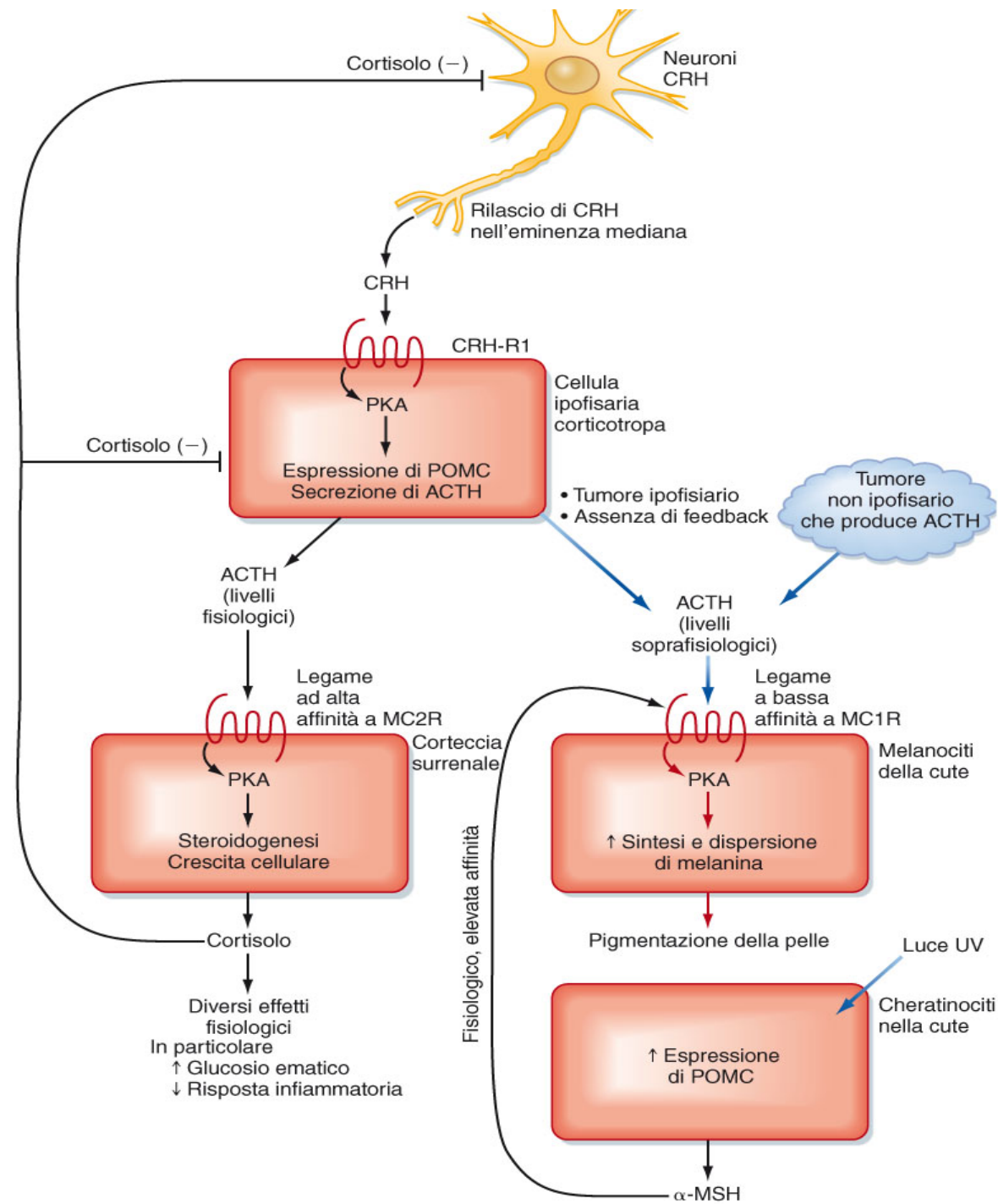
Gastroenterico

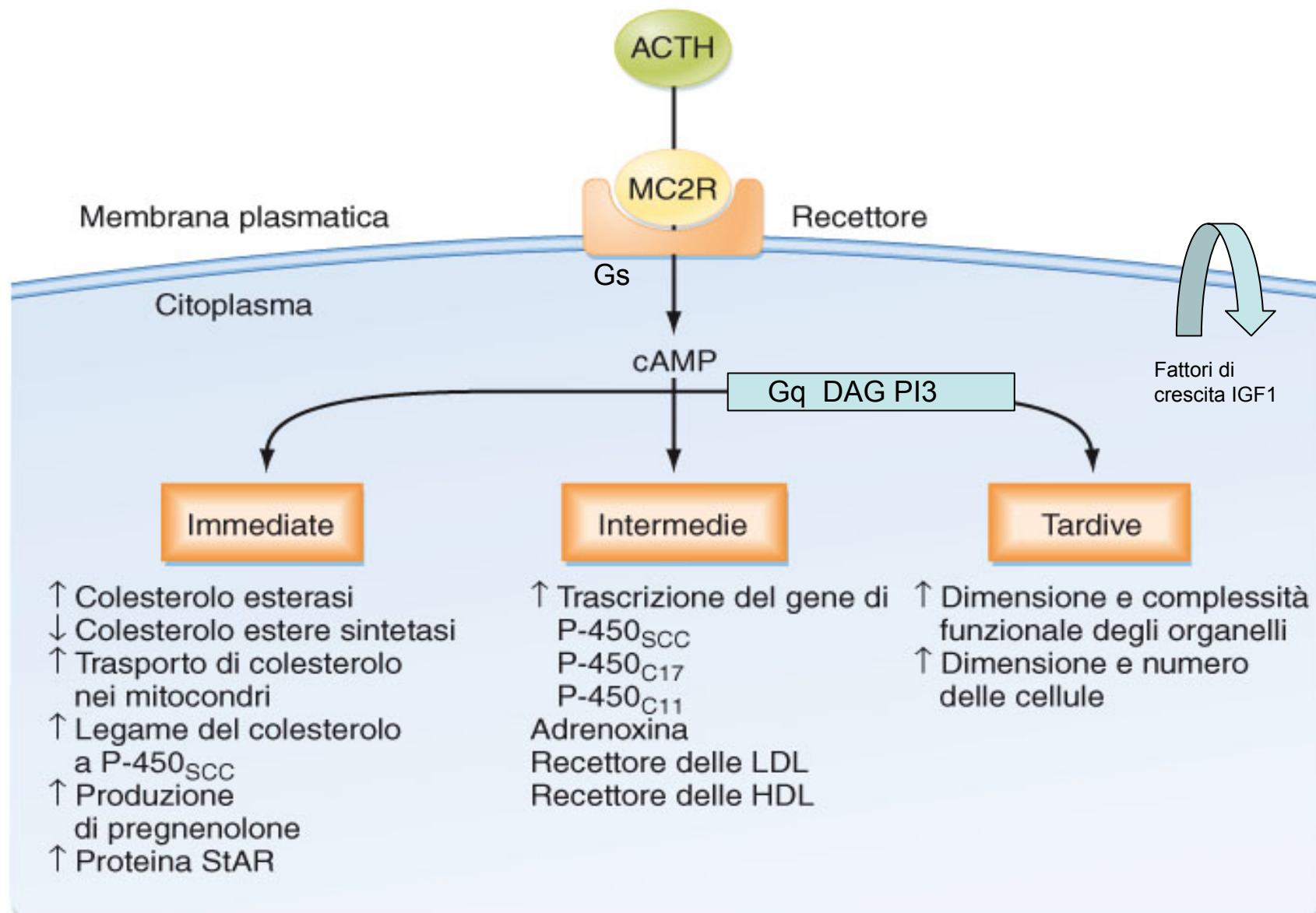
Immunitario

Isole pancreatiche

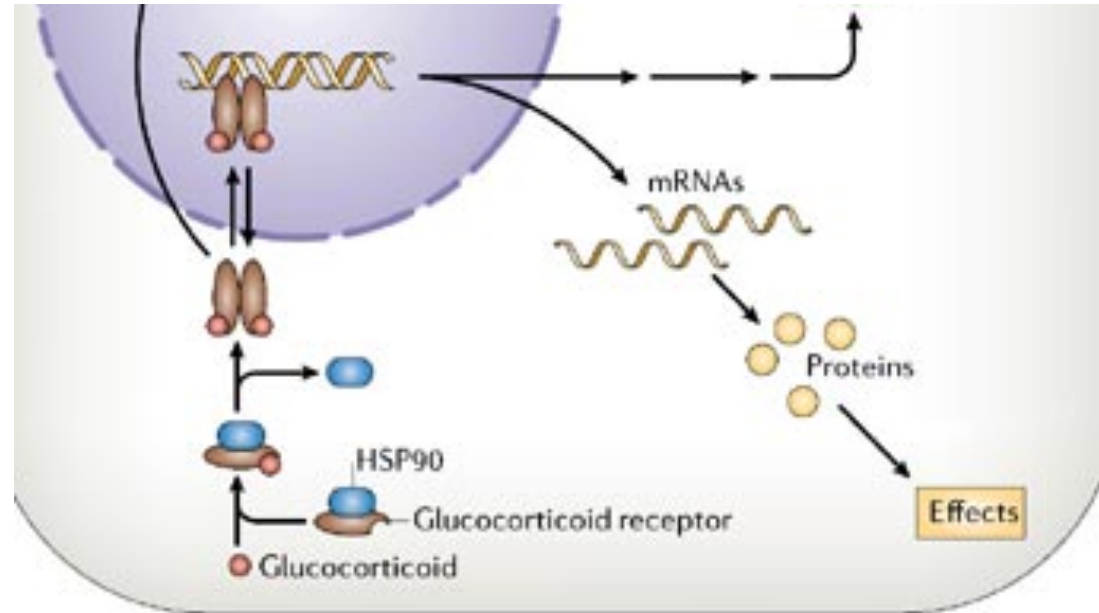
Midollare surrenalica

SNC





Recettori GR



GR1 = MR Chr4

MR- α

MR- β

10 esoni splice

HSD2

Reni

Ghiand sudoripare

Ghiand salivari

SNC

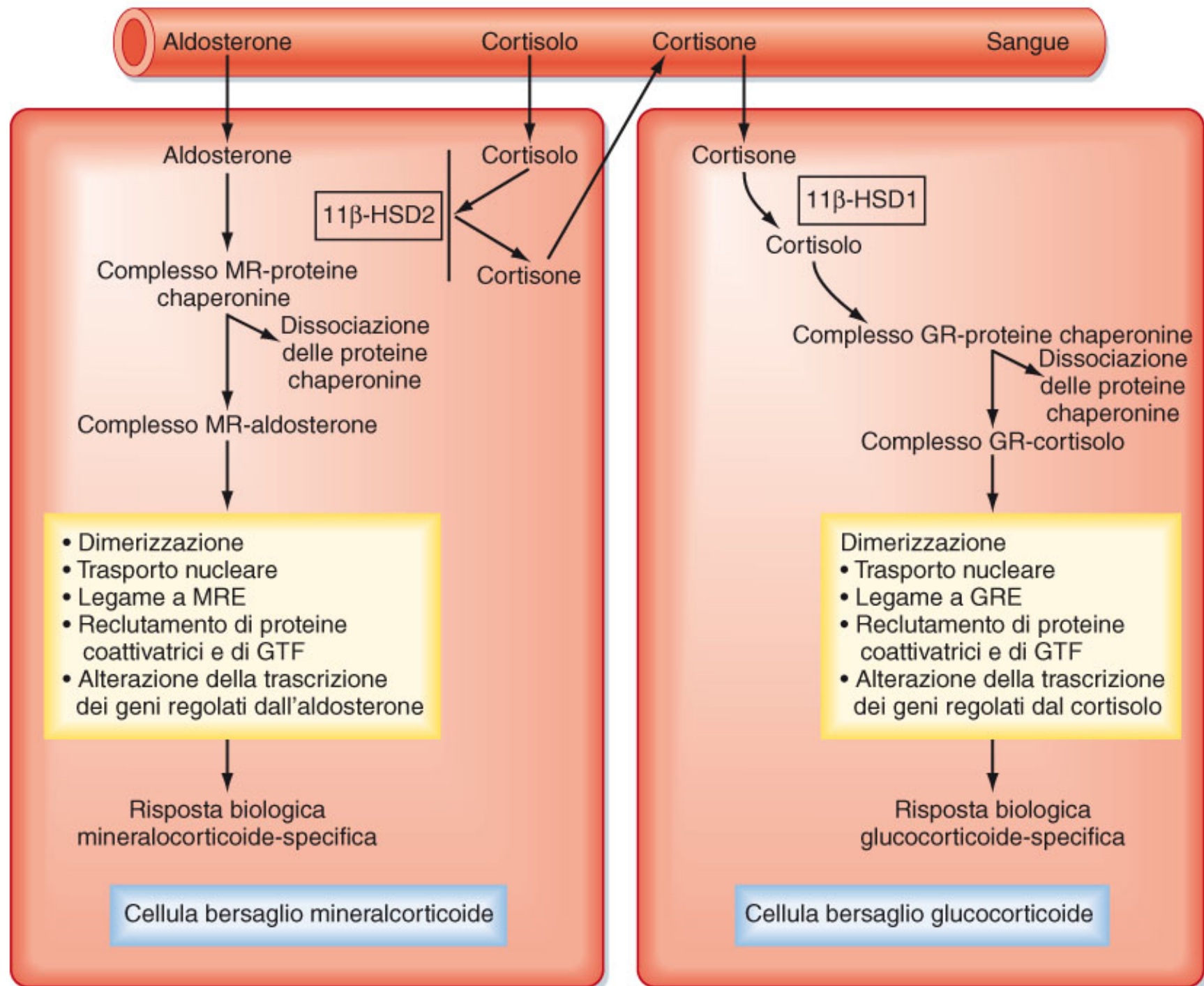
GR2 Chr5

GR- α lungo

GR- β corto inibitore

GR-P

Splice varianti



Effetti generali

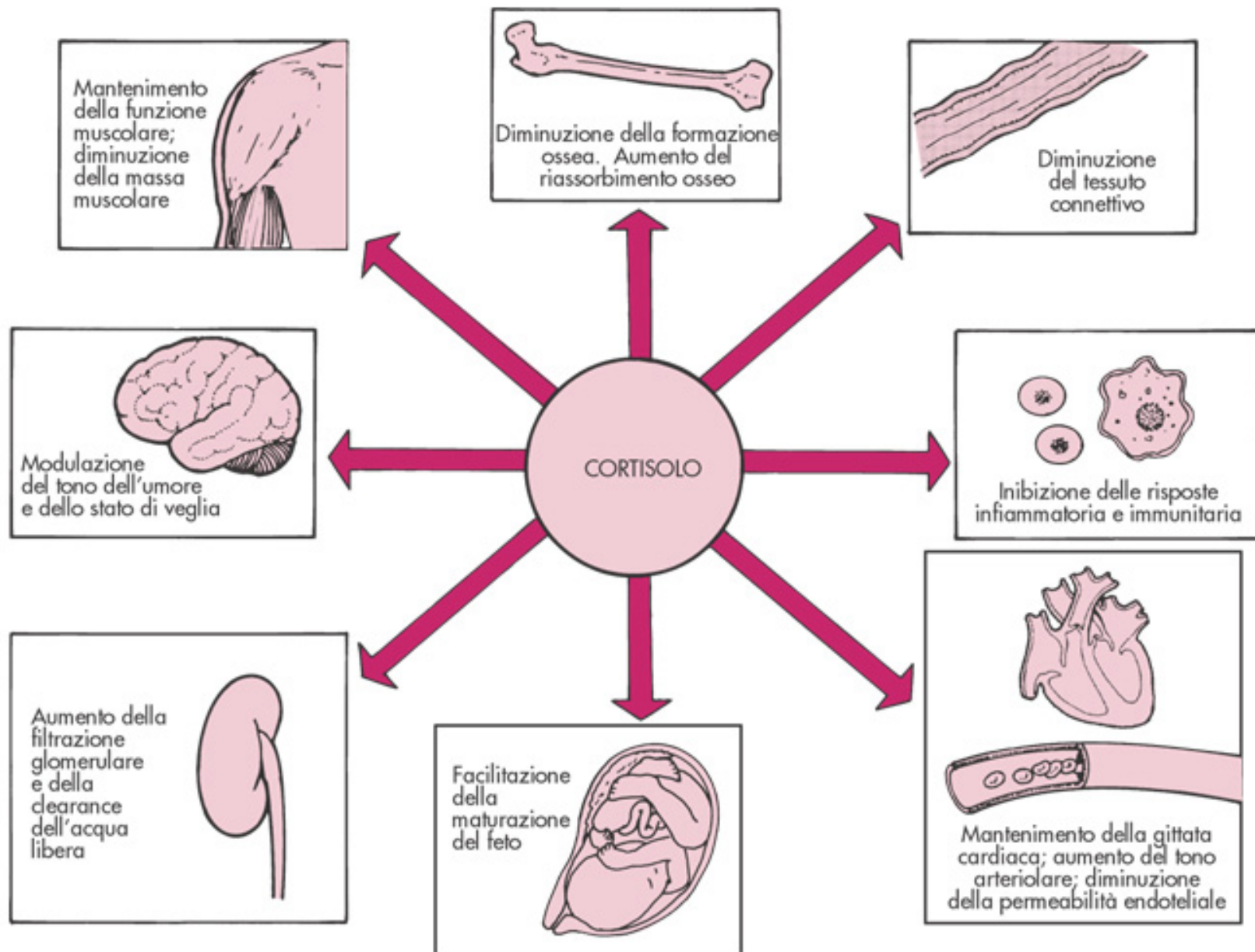


Table 1. The effects of mineralocorticoid receptor activation and glucocorticoid receptor activation in the brain

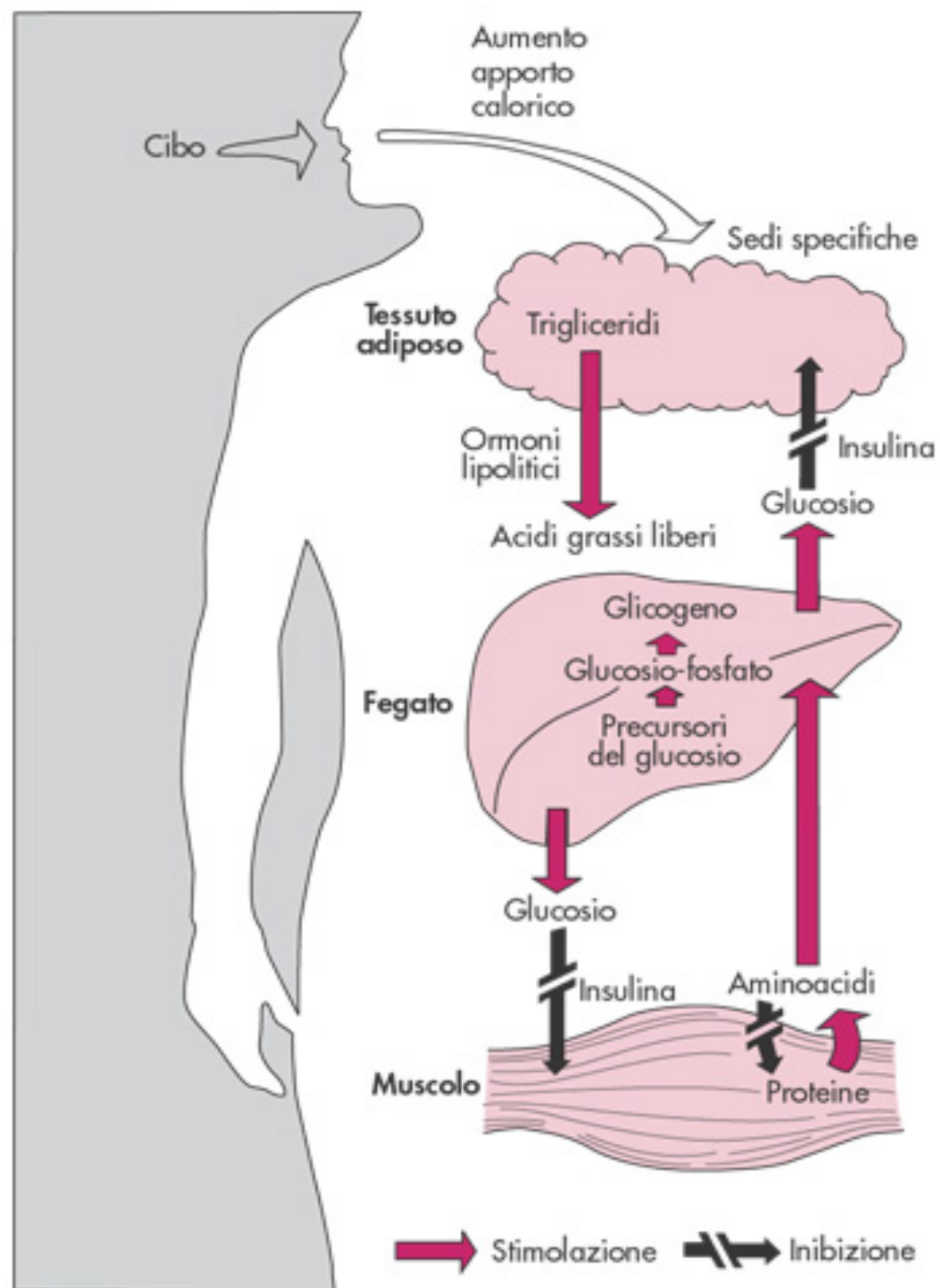
Neuroendocrine effects	Effects of ^{Alte affinità} mineralocorticoid receptor activation MR/GR1	Effects of ^{Bassa affinità} glucocorticoid receptor activation GR2	GR-a GR-b
HPA axis vs feedback	Tonic influence Basal corticosteroid levels	Stress Circadian peak corticosteroid levels	
Hippocampal neuronal excitability	Excitatory	Inhibitory	
Long-term potentiation	Increases long-term potentiation	Decreases long-term potentiation	
Neuronal survival	Protection of hippocampal neurons (maintenance of dentate gyrus granule cells)	During chronic exposure to high corticosteroid levels, stress results in neuron loss in pyramidal cells of Ammon's horn	
Transactivational interactions with AP-1 complex	No effect known	Enhances transcription with c-jun homodimers, represses transcription with c-jun/c-fos heterodimers	

→ *Favorisce memoria l'apprendimento*

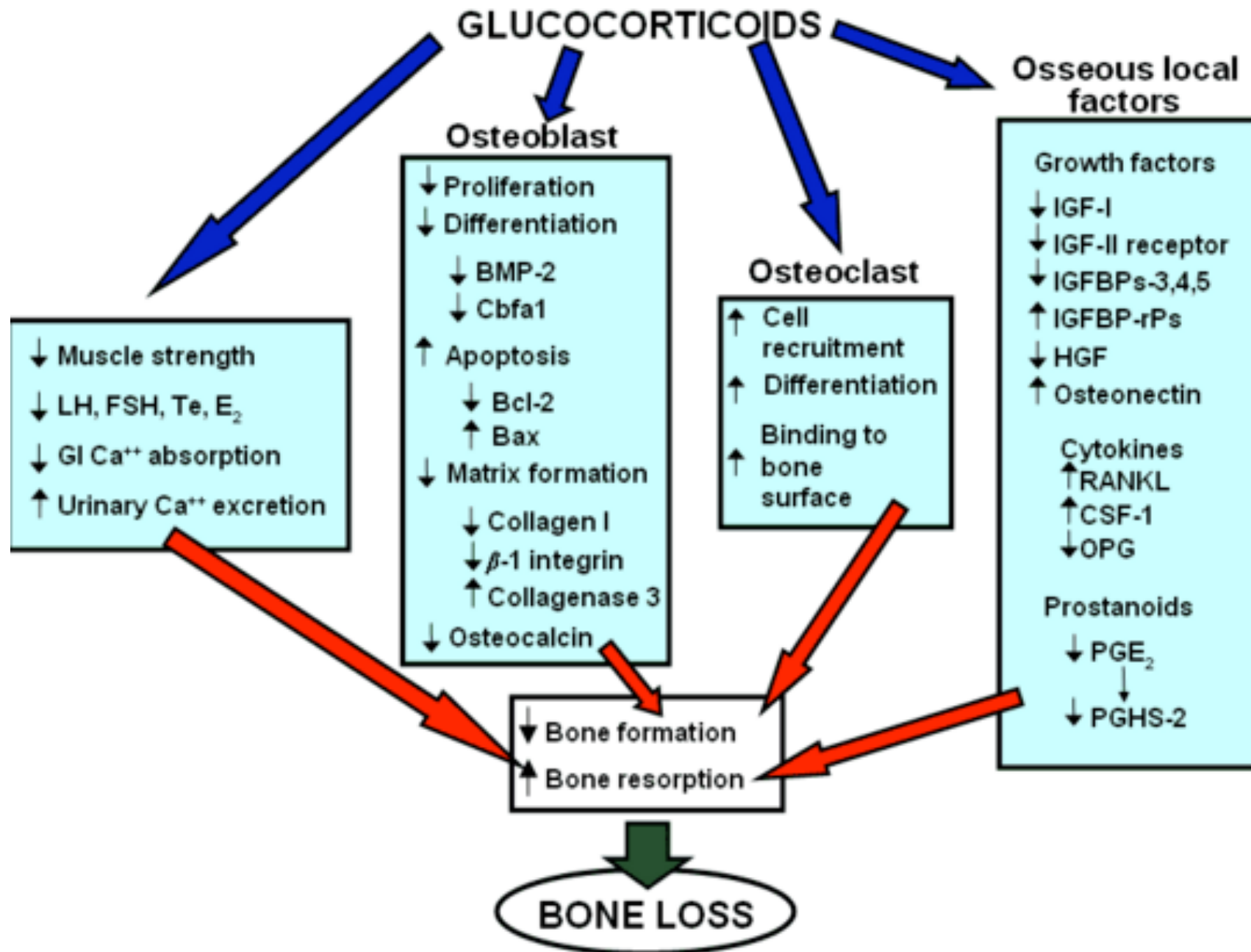
↑ *Ansia e depressione*

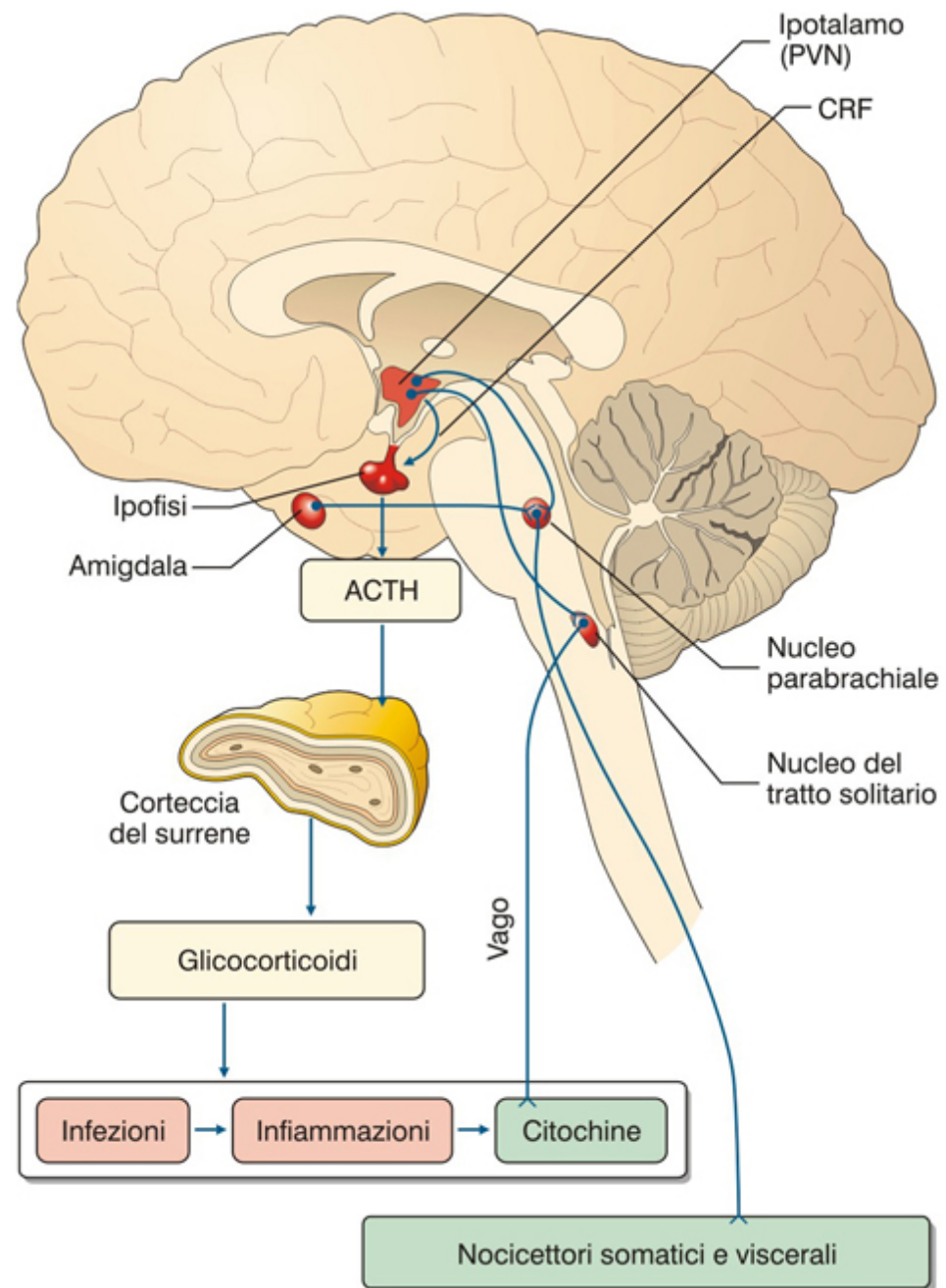
↑↓ *Coinvolto in numerose patologie neurologiche e disordini psichiatrici*

Effetti metabolici

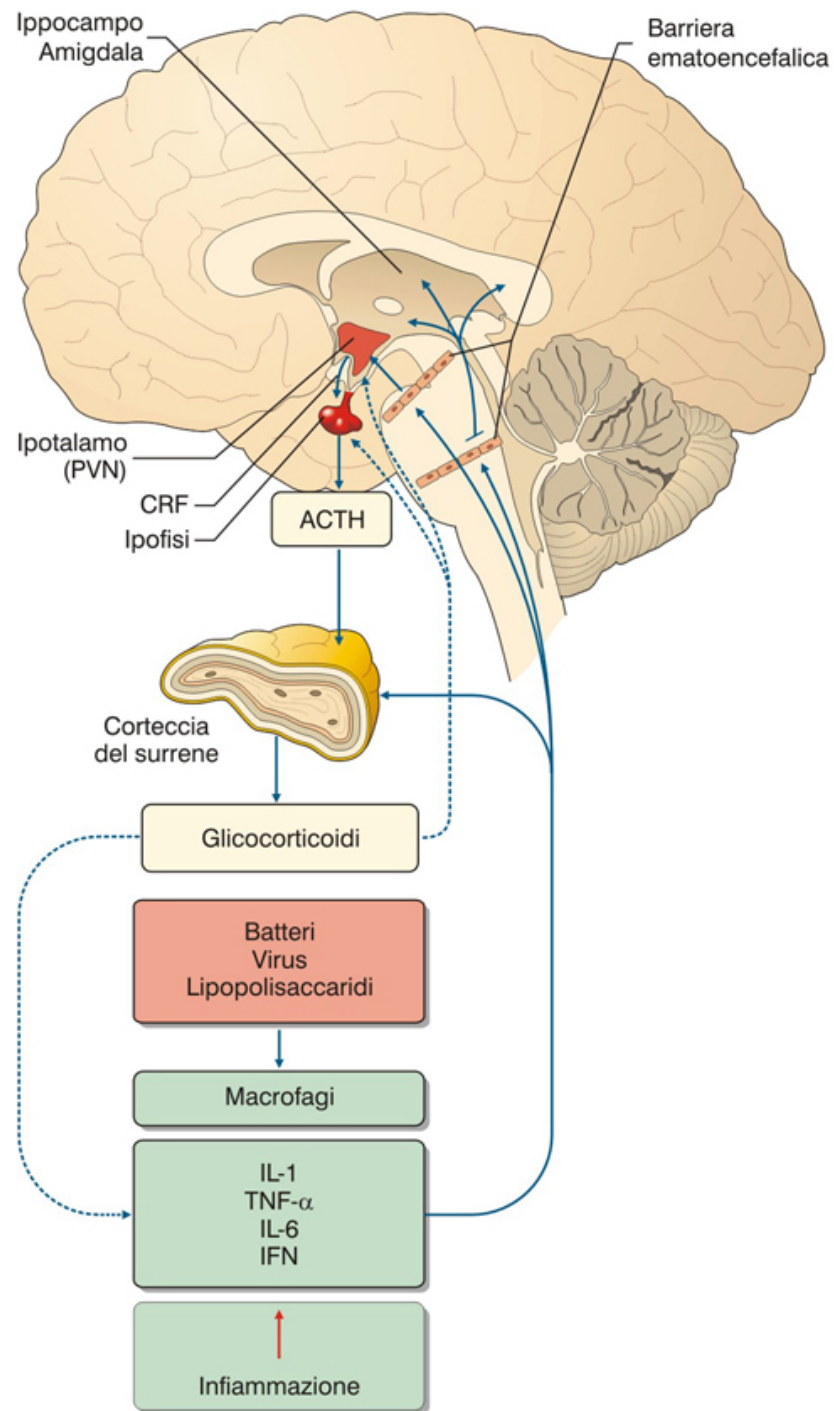


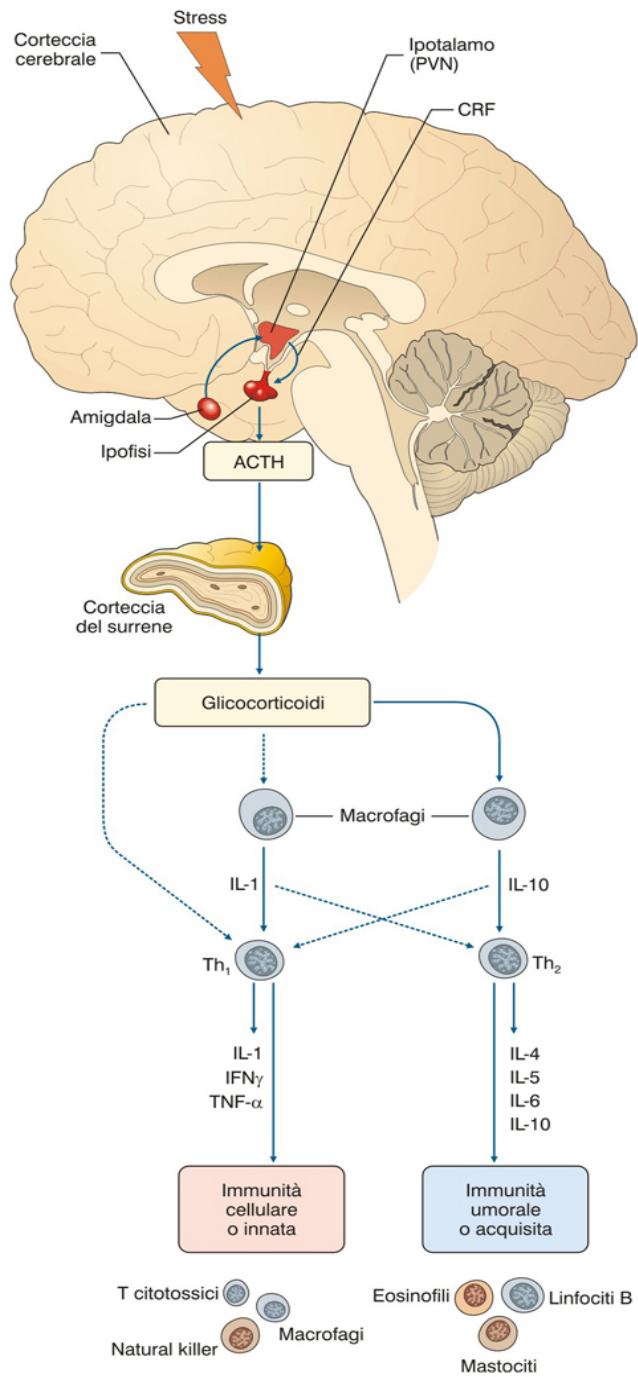
Effetto sul tessuto osseo



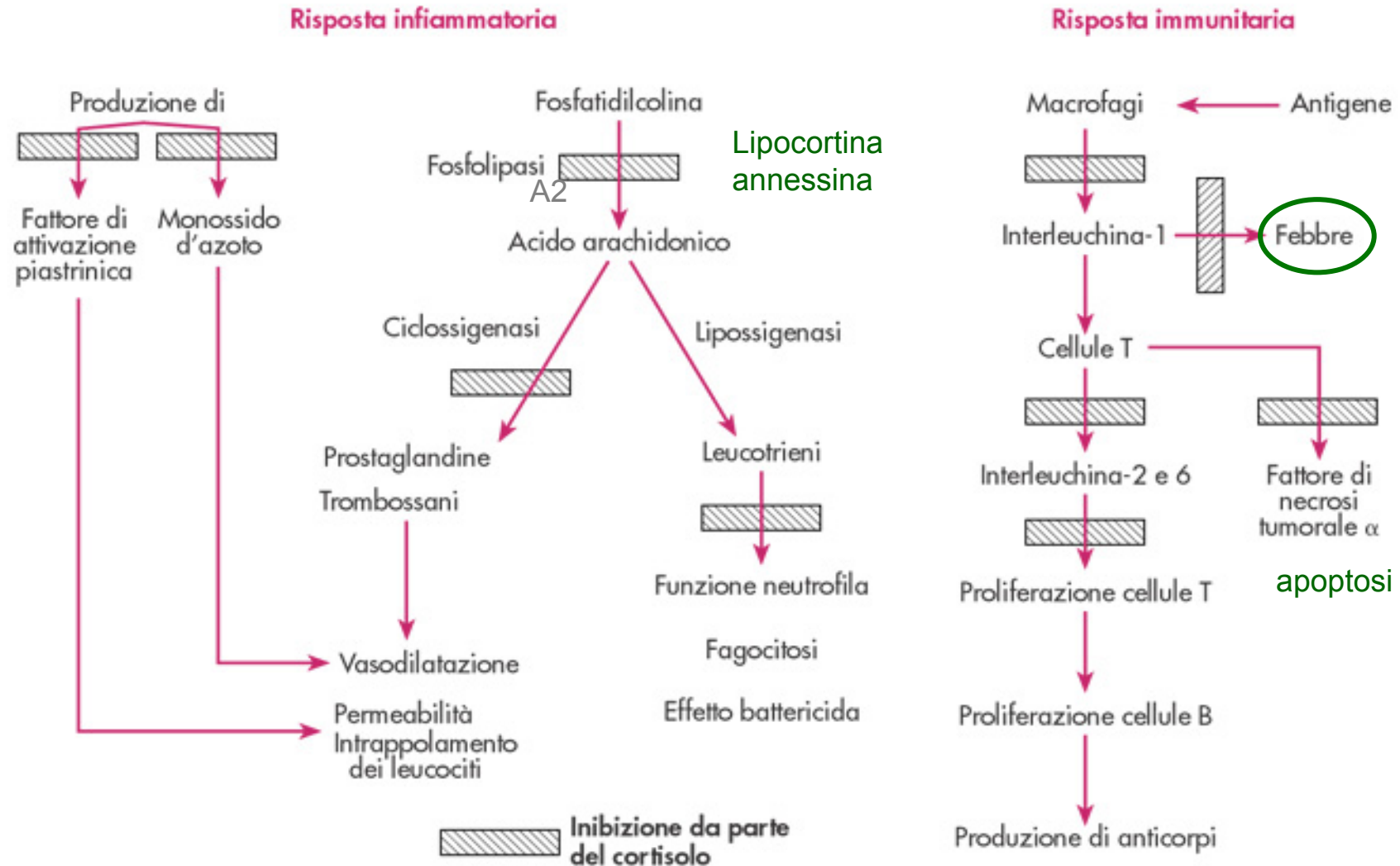


Cortisolo e sistema immunitario





Effetti sistema immunitario



- Diminuita secrezione sostanze chemiotattiche istamina BK SP
- Diminuita vasodilatazione e permeabilità capillare
- Diminuita fagocitosi

EFFETTI SUL METABOLISMO

- produzione di glucosio non utilizzo

- gluconeogenesi ↑
- glicogeno epatico ↑

glicemia ↑

- lipolisi
- proteolisi

aa ↑
chetoacidi ↑

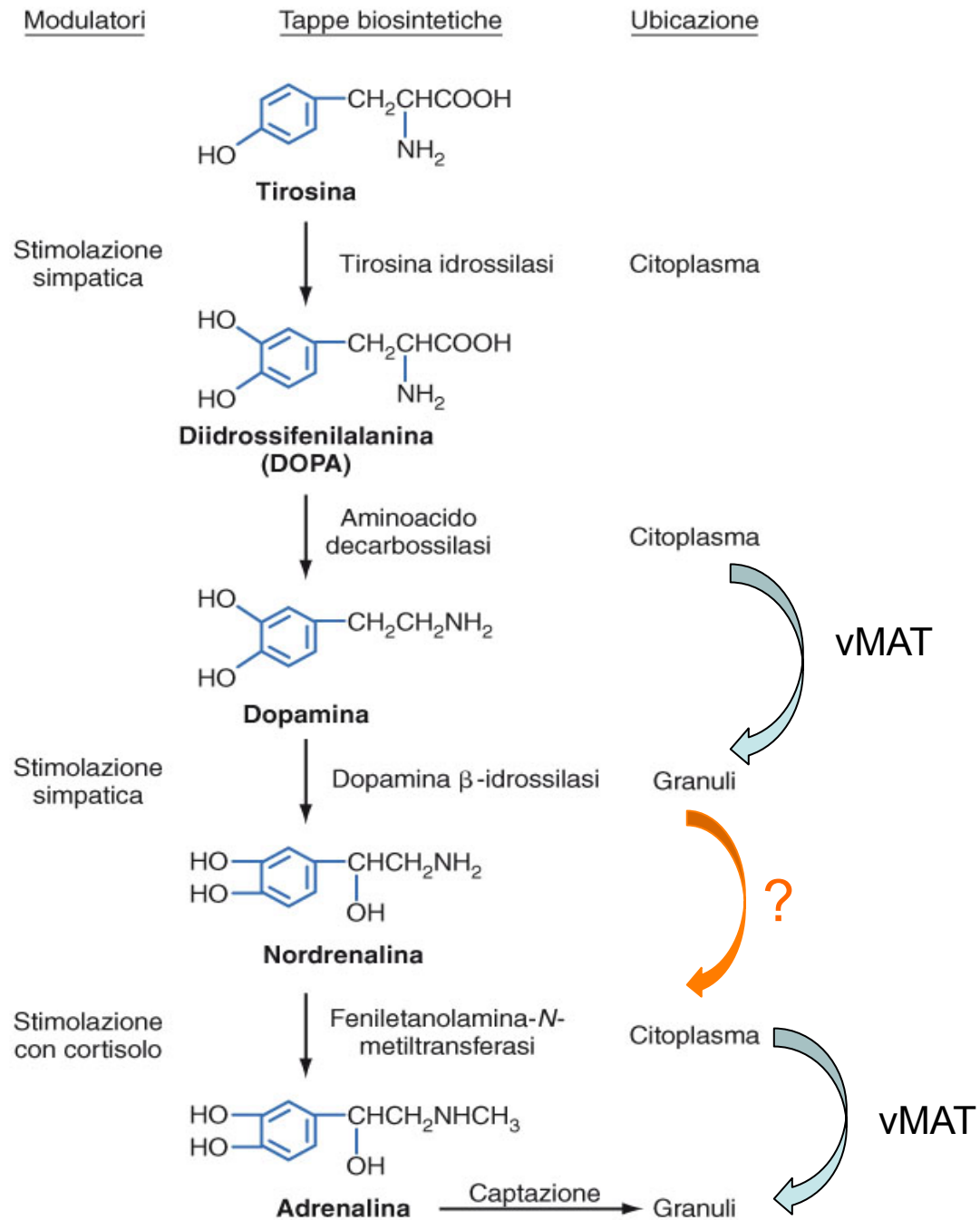
massa corporea ↓

↑ appetito → eccesso OBESITA'

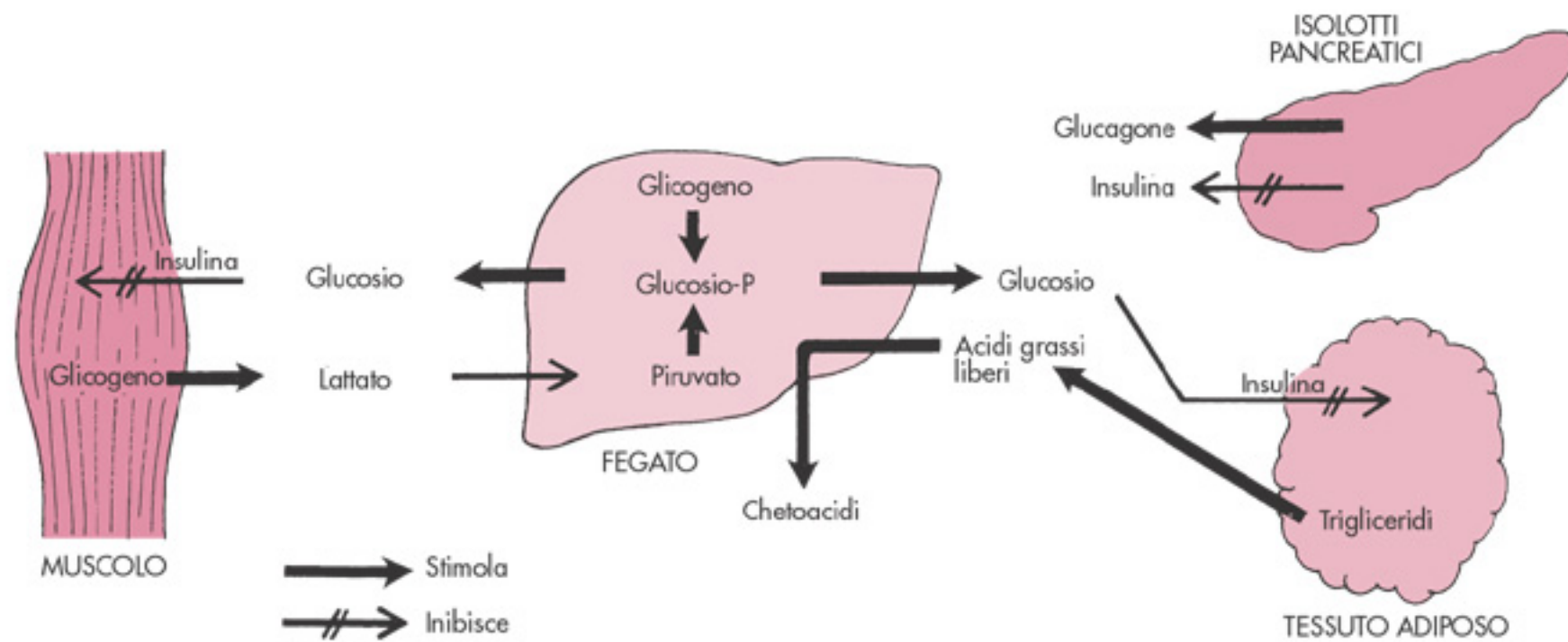
EFFETTI SU ALTRI SISTEMI

- MUSCOLO capacità di contrazione ↑
diminuzione massa muscolare → astenia
- OSSO formazione ossea ↓ riassorb. o. ↑ Ca ↑
→ osteoporosi
- INTESTINO assorbimento intestinale ↓
- EMATOPOIETICO globuli rossi ↑
neutrofili ↑
- MATURAZIONE FETALE POLMONARE
- RENE velocità di filtrazione ↑
- RISPOSTA IMMUNITARIA
- SISTEMA NERVOSO CENTRALE

Midollare del surrene



Adrenalina e metabolismo



■ **Tabella 45-4** Confronto tra le concentrazioni di catecolamine circolanti e le concentrazioni biologicamente efficaci.

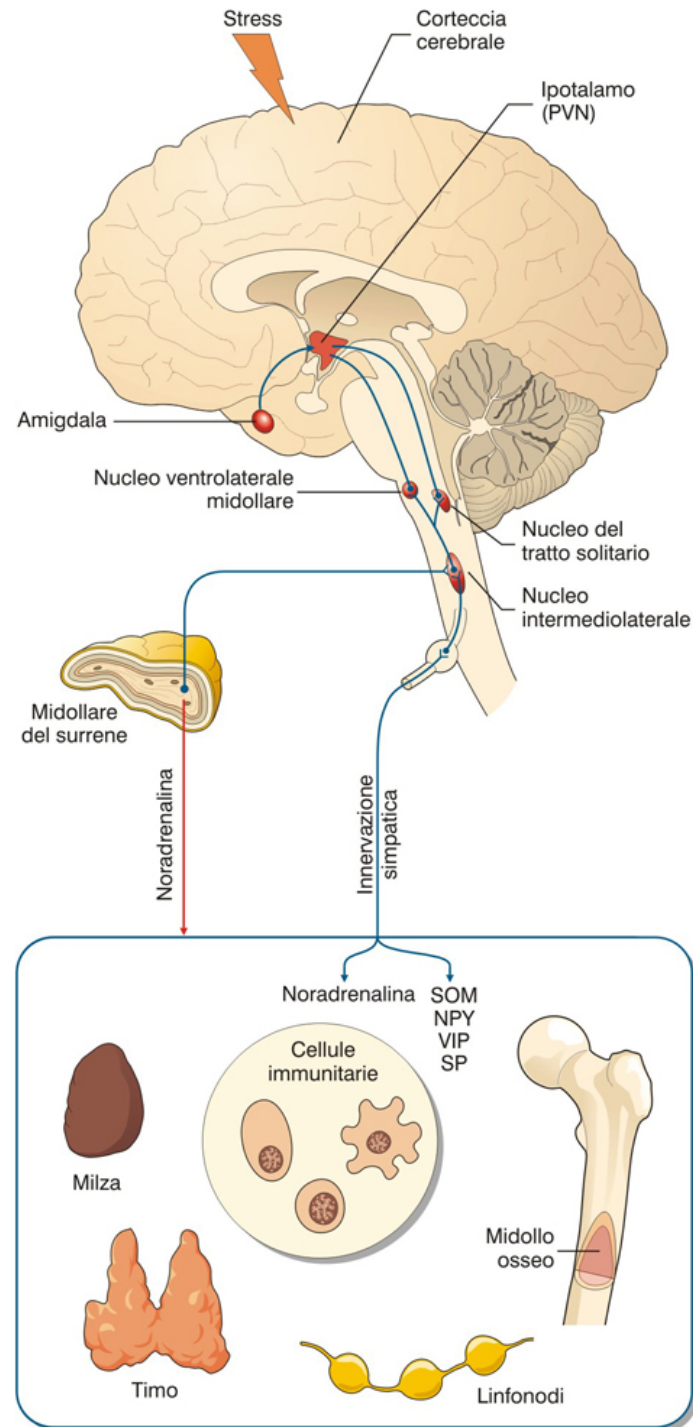
<i>Stato fisiologico</i>	<i>Azione biologica rilevante</i>	<i>Adrenalina plasmatica (pg/mL)</i>		<i>Noradrenalina plasmatica (pg/mL)</i>	
		<i>Valore misurato</i>	<i>Ambito dei valori efficaci per un'azione</i>	<i>Valore misurato</i>	<i>Ambito dei valori efficaci per un'azione biologica rilevante</i>
Basale	—	34	—	228	—
Posizione eretta e pressione sanguigna	↑ Frequenza cardiaca	73	50-125	526	1800
↓ Glucosio plasmatico	↑ Glucosio plasmatico	230	150-200	262	1800
Ipoglicemia grave	—	1500	—	770	—
Chetoacidosi diabetica	↑ Lipolisi e chetosi ↓ Insulina	510	100-400	1270	1800

■ **Tabella 45-5** Le principali azioni degli ormoni catecolaminici.

β Adrenalina > noradrenalina	α Noradrenalina > adrenalina
↑ Glicogenolisi ↑ Gluconeogenesi (β₂) ↑ Lipolisi (β₃) (β₂) ↑ Termogenesi (β₁) ↓ Utilizzazione di glucosio → ↑ Secrezione di insulina (β₂) ↑ Secrezione di glucagone (β₂) ↑ Captazione di K⁺ nel muscolo (β₂) ↑ Contrattilità cardiaca (β₁) ↑ Frequenza cardiaca (β₁) ↑ Velocità di conduzione (β₁) ↑ Dilatazione arteriolare: ↓ PA (β₂) (muscoli) → ↑ Rilasciamento muscolare (β₂) ↑ Gastrointestinale ↑ Urinario ↑ Bronchiale	↑ Gluconeogenesi (α₁) ↑ Glicogenolisi (α₁) ↓ Secrezione di insulina (α₂) ← ↑ Contrattilità cardiaca (α₁) ↑ Vasocostrizione arteriolare; ↑ PA (α₁) (splancnica, renale, cutanea e genitale) ← ↑ Contrazione sfinteri (α₁) ← ↑ Gastrointestinale ↑ Urinario ↑ Aggregazione piastrinica (α₂) ↑ Sudorazione «adrenergica» ↑ Dilatazione pupillare (α₁)

Neuro-endocrino-immunoregolazione

NGF
CNTF
BDNF
NT3



IL-1
IL-6
TNF
INF

GH
Prolattina
Leptina
ACTH
TSH
PTH
Cortisolo
T3
D3

Stress

